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(54) **RECONFIGURABLE ANTENNAS UTILIZING PARASITIC PIXEL LAYERS**

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CPC ***H01Q 19/005*** (2013.01); ***H01Q 3/01*** (2013.01); ***H01Q 9/0414*** (2013.01); ***H01Q 9/0442*** (2013.01)

(58) **Field of Classification Search**

CPC H01Q 19/005; H01Q 9/0414; H01Q 3/01; H01Q 9/0442; H01Q 15/002

See application file for complete search history.

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(57) **ABSTRACT**

Reconfigurable antennas utilizing parasitic layers are disclosed herein. In certain embodiments, a reconfigurable antenna may include an active driven antenna element. The active driven antenna may be a patch antenna element. A parasitic element may be disposed over the active antenna element and be configured to couple with electromagnetic energy emitted from the active antenna element via electromagnetic mutual coupling. The parasitic element may include an array of selectively reconfigurable pixels interconnected via microelectromechanical switches. By selectively reconfiguring the geometry of the array, the reconfigurable antenna may be configured to operate in multiple operating modes.

22 Claims, 17 Drawing Sheets